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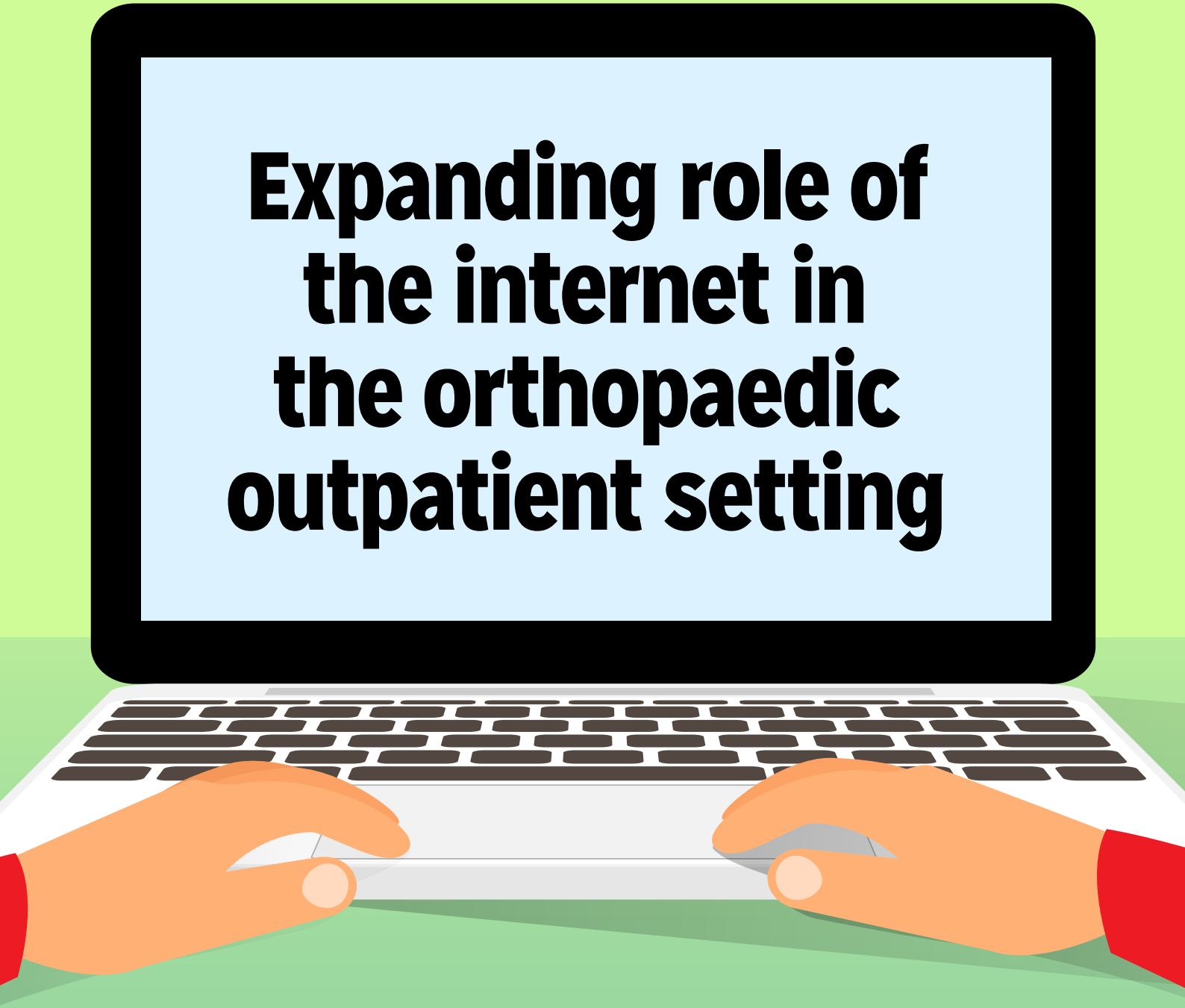
Expanding role of the internet in the orthopaedic outpatient setting



How feasible are 'virtual' follow-ups really?

E Thorne Foundation Year 2[1]
PD Mackenzie Core Surgical Trainee[1]
Matthew Wilson Consultant Trauma and Orthopaedic Surgeon[2]

[1]Royal Devon and Exeter Hospital, UK
[2]Princess Elizabeth Orthopaedic Centre, Exeter, UK

The number of patients requiring review after joint arthroplasty is increasing. With an ageing population, increasing expectations from patients, and improved diagnostic methods and treatments, the demand for these procedures will also increase.[1]

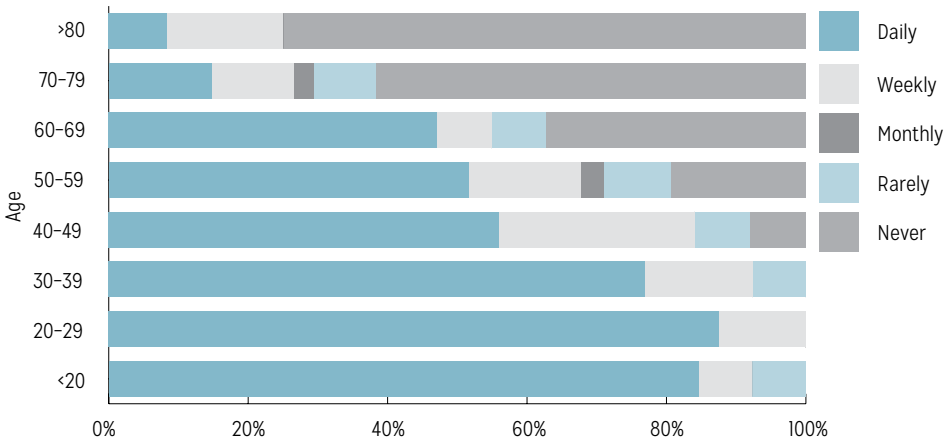
The Department of Orthopaedic Surgery at Royal Devon and Exeter Hospital (Exeter, UK) started to experience a backlog of long-term arthroplasty patients requiring follow-up owing to limited outpatient resources and clinical staff. This scenario led us to think about other ways of reviewing these patients and to explore the feasibility of 'virtual' follow-ups.

In 2002, Gupte and colleagues reviewed Internet use in the setting of orthopaedic outpatient clinics. They investigated the: (i) prevalence of Internet use; (ii) perception of the quality of medical information provided by the Internet; (iii) future intentions and attitudes towards Internet-based consultations.[2] Their study showed promising data about the potential use of Internet-based follow-up, concluding that more than half of the patients evaluated were willing to access the Internet for medical information, with younger patients more likely to do so. Moreover, a significant proportion of respondents were willing to undergo an Internet-based consultation.

The decade between the study by Gupte and colleagues and the present study has seen huge expansion in the use and availability of the Internet in the domestic setting. In 2002, a poll by the UK Office of National Statistics (ONS) concluded that 46% of UK households had an Internet connection. In 2011, ONS data showed that 77% of UK homes had an active internet connection.[3] This rise has continued and, in 2014, 84% of individuals used the internet and 76% of adults accessed the internet each day.[4]

In addition, the way in which individuals access the internet is evolving, with 45% of internet users now accessing it via mobile devices. An estimated 6 million people accessed the internet via a mobile device for the first time in 2011.[3]

Figure 1 How often do you use the internet?



With the huge growth in internet availability in the past decade, we aimed to: (i) ascertain how use, attitudes and perceptions of the internet have changed over this time; (ii) explore potential uses and problems of internet follow-up in a patient cohort; (iii) ascertain if patients had access to an email account and, if so, would consider using an email-based questionnaire on follow-up; (iv) discover if individuals who did not have direct access to the internet had friends or relatives who did, and whether they would be willing to engage in follow-up by 'proxy'.

METHODS

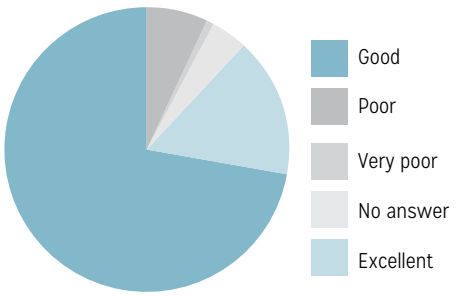
Two hundred questionnaires were distributed to consecutive patients attending outpatient clinics at the Princess Elizabeth Orthopaedic Centre (Exeter, UK). A total of 187 patients (93.5%) responded.

Basic demographics (including age, sex, occupation, and whether they were attending a new or follow-up appointment) were recorded for all patients. The sole exclusion criterion was patients aged <18 years.

Questionnaire

Our questionnaire (Appendix 1, online) was based on 14 questions, with 5 questions based on population demographics. Designs of some of the questions were based on those used by Gupte and coworkers,[2] and examined: use of, and access to, the internet; patient opinions with regard to the quality of information available on the internet; intended future use of the internet to access medical information; willingness to participate in future 'virtual consultations'. However, questions were adapted to incorporate uncertainty/ambiguity among the study population.

Figure 2 How would you rate the quality of information on the internet?



We also included questions we considered to be relevant when assessing the potential uses of internet-based outpatient follow-up. For example, the willingness of patients to take part in such a follow-up process, email access, and their ability to access the internet through a close family member if the individual did have personal access to the internet/email.

RESULTS

Internet access

Sixty-nine per cent of respondents said they had access to the internet and used it at least 'rarely' (Figure 1). There was a correlation

Figure 3 Would you consider internet-based follow-up?

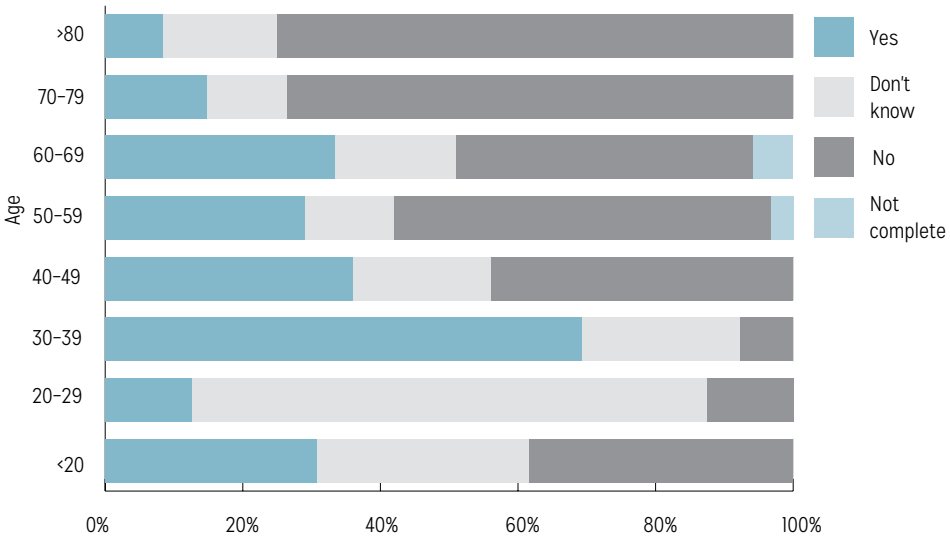
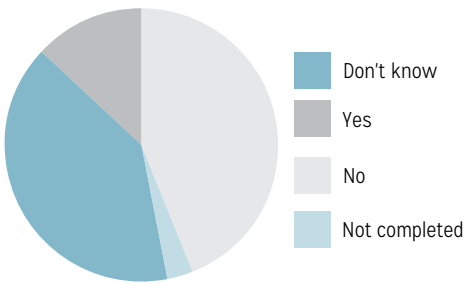


Figure 4 Would you consider email-based follow-up?



between age and internet use, with 100% of those aged <40 years accessing the internet. There was a linear decline in internet use with age, with >20% of those aged >80 years using the internet. The largest proportions of 'daily' internet users were those aged 20–29 years.

Email access

A similar trend was observed for email use, with greatest use (100%) seen among those aged 20–40 years. A small proportion of respondents aged <20 years said they had no email account but, otherwise, there was a linear relationship between age and email access.

Of the 67 patients who did not have access to the internet or an email address personally, 59% (n=40) said they had a close relative who had access to the internet and an email address.

Internet use

Of the total 187 patients in our cohort, 77 (41%) had used the internet to research a medical condition previously. Overall, the quality of the information/data available on the internet was felt by respondents to be of a 'high' standard, with 88% of those who had used the internet (n=67) rating the information as 'excellent' or 'good' (Figure 2).

Future applications of the internet

When asked if they would consider virtual consultations in the future, 49% (n= 91) of participants said they would not (Figure 3). However, there were differences between age groups, with 69.2% of patients aged 30–39 years saying that they would consider this request, compared with 20.6% of those aged <40 years.

Recording of follow-up based on a questionnaire sent by email

With regard to the possibility of follow-up based on a questionnaire sent by email as opposed to a clinic-based appointment, 44% (n=82) of participants said they would not be happy with this scenario (Figure 4).

Responses varied widely according to age group. Participants aged 30–39 years were most receptive, with 71.4% saying they would consider this option. Of those aged 30–69 years, 51.5% said they would be interested in an email-based follow-up: this age group could be targeted for this type of follow-up.

Upon questioning participants who did not have access to the internet or email, 47% (n=31) of respondents said they would not be willing to allow a close relative or friend to complete an email-based questionnaire on follow-up on their behalf.

Discussion

The growth of the internet is represented clearly in our data, with 69.5% of all respondents using the internet compared with 55.3% of respondents in the study by Gupte and co-workers in 2002.[2] This growth of the internet may have been expected to be more considerable in the past decade given the rapid increase in internet access within the home suggested by ONS data. However, this disparity is more likely to be attributable to the different populations evaluated in the study by Gupte and colleagues and our data, which is a limitation accepted by the authors in 2002 and indeed equally a limitation of our study. In the data provided by Gupte and co-workers in 2002, 15.7% of respondents were aged >65 years. However, in our dataset, 51.8% of respondents were aged >60 years and, if the responses of those aged <60 years are analysed, 91% of those individuals questioned used the internet, with 100% use by those aged <40 years.[2]

Of the 67 patients who did not have personal access to the internet, 59% (n=40) could gain access via a close relative. This outcome was not assessed by Gupte and colleagues, but is important when exploring possible uses of the internet in outpatient care of orthopaedic patients using virtual follow-up.[2] Ultimately, this finding suggests that, of our entire cohort of 187 patients, 85.5% (n=160) could access the internet to engage in virtual outpatient clinics/follow-up.

Some researchers claim that virtual consultations can be 'better, faster and cheaper'. When Gupte and colleagues compared virtual consultations with conventional

face-to-face consultations, they stated that virtual consultations did not affect patient perception of quality of care, nor did it affect clinician satisfaction.[5-8] Furthermore, virtual consultations may offer advantages over conventional consultations in the elective non-urgent setting because they are faster and less expensive, and therefore liberate more time for clinicians to see more urgent cases in face-to-face clinics.[7] Sharareh and Schwarzkopf[9] investigated the cost-effectiveness and satisfaction of internet-based follow-up after joint arthroplasty. They found that this strategy could reduce the total number of unscheduled postoperative clinic visits and calls while increasing patient satisfaction, as well as reducing the amount of time wasted on did-not-attend appointments.[9] This approach has several advantages and could take the pressure off other resources, such as general practice and accident and emergency, which patients might use otherwise.

Other studies have shown conflicting results. In 2014, Marsh and colleagues found that patients using internet-based follow-up were slightly less satisfied than face-to face patients (75.6% vs. 82%).[10]

Despite the apparent advantages of internet-based review, our data suggest that people are sceptical of virtual consultations, with 49% answering a definitive 'no' if asked whether they would consider it in the future, compared with 39.3% in the study by Gupte and co-workers.[2] This finding could be related to a lack of understanding of what virtual clinics entail. It also illustrates the importance of the education and reassurance of patients if these novel methods are to be adopted.

Disadvantages to internet-based follow-up must also be considered. Before such methods are introduced, clear inclusion and exclusion criteria must be defined. Initially, only straightforward 'uncomplicated' patients should be enrolled until safety, efficacy and patient satisfaction can be assessed. Only after these features have been confirmed can this strategy be employed for more 'complex' cases.

CONCLUSIONS

Our data suggest that more people are gaining access to the internet and are using it more frequently than they were one decade previously. Furthermore, many individuals who do not have access to the internet may be able to gain access via a close family member. We have shown that many internet users are accessing medical information online and that, overall, patients have a high regard for much of the information that is available on it (though the accuracy and content of many of the internet websites available is controversial).

Overall, patients have a high regard for much of the information that is available on the internet

What we have perhaps failed to see is a change in attitudes towards the potential uses of the internet in a clinical context, in particular the possibility of virtual clinics and consultations. This attitude may change if we can convince patients (through education and reassurance) that these clinics are safe and effective.

Presently, in our unit, non-internet based virtual clinics have been implemented for patients who have undergone elective primary hip arthroplasty after the initial six-week follow-up. We are collecting email addresses (if available) and reviewing patient satisfaction and safety to ascertain the usefulness and applicability to clinical practice. Then we will use the data from the present study to target specific groups of patients who may be interested in internet-based follow-up.

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